

• COLORADO RIVER •
AQUEDUCT NEWS

THE METROPOLITAN WATER DISTRICT

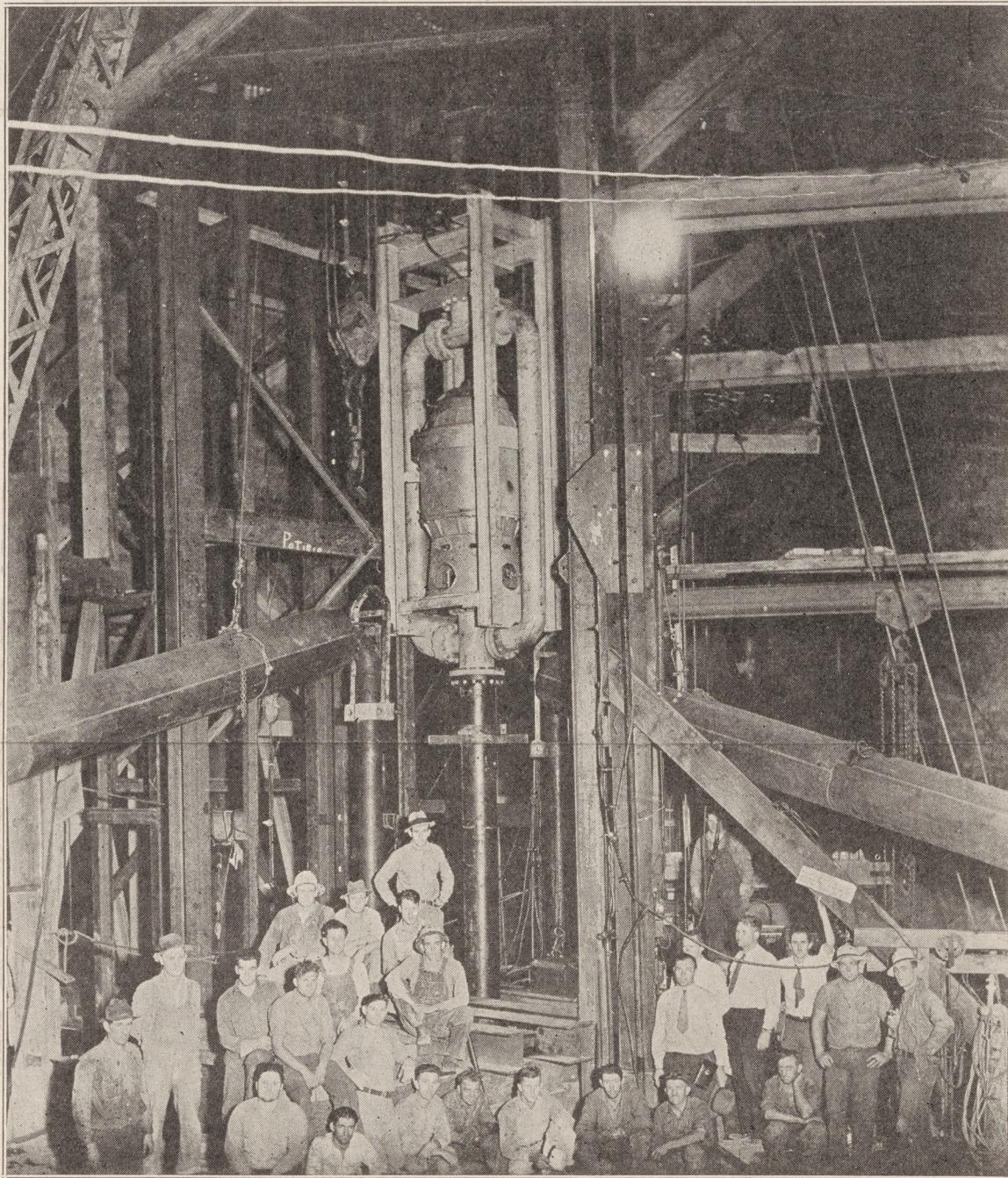


OF SOUTHERN CALIFORNIA

Vol. 1

AUGUST 20, 1934

No. 15



READY TO GO

The new 750 horsepower pump which was installed last week at Potrero shaft of San Jacinto tunnel. (See Page 5.)

COLORADO RIVER
AQUEDUCT NEWS
 THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
 LOS ANGELES, CALIFORNIA

Published twice monthly in the interest of Field and Office Workers on the Colorado River Aqueduct, and for the information of all other citizens of the Metropolitan Water District.

Vol. 1 August 20, 1934 No. 15

A SIGNIFICANT STORY

Beginning in this issue of the NEWS is a story of real significance to all persons who have an interest in the construction of the Colorado River Aqueduct—and that means every citizen of the Metropolitan Water District.

It deals with the District's Testing Laboratory at Banning, and with a phase of aqueduct construction the importance of which is fundamental.

One paragraph in the article sums up what is being done by Testing Engineer Lewis Tuthill and his staff:

"The laboratory section for testing of construction materials, principally those concerning concrete, was set up to perform two classes of work. The first is a preliminary investigation to locate and determine the suitability of various materials to be found along the Aqueduct route which might be used for concrete aggregate and related work. The second is to test concrete materials, cement, sand and rock, as it is prepared and delivered to the job for use in the Aqueduct concrete, and to test the concretes made for the Aqueduct with these materials and such related work."

That paragraph typifies the care and study which have been devoted to Colorado River Aqueduct construction. It shows the District's belief in that old, old adage which says, "A stitch in time saves nine."

AN OPEN LETTER

Dear Correspondents:

Admitting (1) that it is hot, (2) that it is more fun to play pool, and (3) that writing news items is a blasted nuisance anyhow—admitting all this, still how about getting in a few?

We editors are sensitive fellows—and it hurts, deeply, to be shunned and ignored as the editor of the NEWS has been for lo! these many weeks.

We also are inquisitive, nosy fellows. We want to know who is engaged to whom; who has acquired a new wife, husband, or baby.

So (to be crudely frank about it) please kick in. Hopefully,

THE EDITOR.

GENERAL MANAGER REVIEWS ACTIVITIES OF MONTH ON AQUEDUCT

(Editor's Note: The following is a brief summary of the monthly report of General Manager & Chief Engineer Weymouth, filed with the Board of Directors in August, covering work during July. These summaries are presented at regular intervals.)

Legal Division—Delivery of and payment for Interim Certificate No. 13 in the amount of \$2,059,400 was effected. Drafts of various documents to be used in connection with the Public Works Loan and Grant Agreement were prepared and sent to the Public Works Administration for approval.

Miscellaneous Activities Division—Requests were received for detailed information relative to progress of work on the aqueduct from a number of engineering and construction journals throughout the country. Technical and general interest in the progress of aqueduct work is reflected by a number of requests for printed information. During the period between July 30 and August 4, the District presented a Colorado River Aqueduct exhibit at the Progress of Science show sponsored by the Los Angeles Chamber of Commerce.

Construction Division—(See progress table on Page 6.)

Field Engineering Division—Safety issues were discussed at meetings of the various safety committees, and material progress is being made in eliminating unsafe conditions and practices. In the concrete testing laboratory, tests were continued with the special cements prepared at the University of California and further studies were made to determine the most satisfactory mortar for use in cement acceptance tests. District roads are being maintained by maintenance crews working from the various Division headquarters. Routine supervision was given to transmission, telephone, and water lines. During July a total of 4,646,400 kWhr of power was used, 14,500 telephone calls were handled, and 2,144,070 cubic feet of water was delivered.

Office Engineering, Civil—Bids on construction of Parker Dam were opened by the United States Bureau of Reclamation at its Los Angeles office July 26. At the end of the month specifications for construction of conduit, canals, and siphons from Whipple to Iron Mountain, a distance of 55.5 miles, were in galley proof, and specifications for similar construction from Iron Mountain to Hayfield (38.6 miles) were practically

ready for the printer. Additional alternative designs and specification drawings for steel and precast pipe siphons at Pineto Wash, Eagle Lift, and No. 116 siphon on Division 3 were prepared, together with other special structure drawings. Final revisions were made on the drawings to be included in the specifications for the work from Whipple to Hayfield, and work has been continued on drawings for structures on Division 4. Observations and tests on the Fan Hill conduit and siphon sections were continued throughout the month. The treating equipment at various wells of the District's water supply was inspected and adjusted.

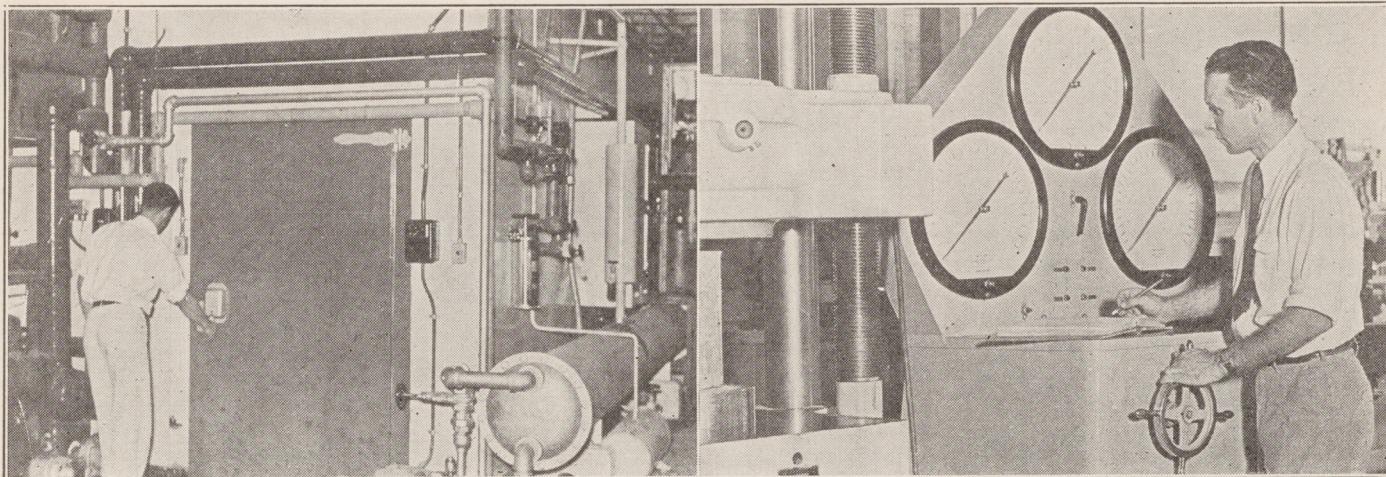
Electrical Engineering Division—Work was continued on the design of the main pumping plants, alternate designs being prepared for single and double suction pump installations. The pump testing laboratory at Caltech was completed except for the installation of the dynamometer which arrived July 31. Actual testing work will begin about the middle of August. District report No. 643 of the Insulation of the 230kv transmission system was reviewed by Prof. Royal W. Sorensen of Caltech, who has submitted a letter approving the recommendations of this report. A draft of a report on the structural design of the transmission line was completed. Assistance was given Wenzel & Henoch in the preparation of plans for unwatering Potrero shaft. A concrete bulkhead was designed for installation in the tunnels to shut off water in case further trouble is encountered from this source.

Right of Way Division—Regular work was continued on the securing of aqueduct rights of way.

Personnel Division—There are now 6,884 approved applications for classified positions in the active file.

Purchasing Division—A total of 969 purchase orders were issued covering purchases amounting to approximately \$97,377.46.

Accounting and Costkeeping Division—Actual costs to July 31, 1934, amounted to \$23,315,556.99, covering portions of works and activities, the total cost of which is estimated at \$61,668,772.



In the newly completed laboratory annex—controlled room "C" and view of part of the equipment and piping for control of other rooms. (Right) 300,000 pound Universal testing machine with automatic uniform rate of load controller and hydraulic support. The operator is Testing Engineer Lewis H. Tuthill.

METROPOLITAN WATER DISTRICT TESTING LABORATORY FUNCTIONS DESCRIBED

(Editor's Note: The following is the first of two articles dealing with the functions of the Metropolitan Water District Testing Laboratory at Banning.)

For almost three years the Metropolitan Water District has been conducting exhaustive tests of cement and concrete materials under laboratory conditions. Since May 11, 1933, this work has been carried forward in the District's laboratory building at Banning.

Lewis H. Tuthill, District testing engineer, has been in charge of this activity since its inception.

Two Classes of Work

The laboratory section for testing of construction materials, principally those concerning concrete, was set up to perform two classes of work. The first is a preliminary investigation to locate and determine the suitability of various materials to be found along the Aqueduct route which might be used for concrete aggregate and related work. The second is to test concrete materials, cement, sand and rock, as it is prepared and delivered to the job for use in Aqueduct concrete, to test the concretes made for the Aqueduct with these materials and such related work.

First and most important among the preliminary tests were those to locate and determine the suitability of the untried sand and gravel deposits along the line for use as concrete aggregate. Sands and gravels from over sixty sources have been tested individually for their physical properties and in mortars and con-

cretes in various proportions, cement contents, water ratios, and brands of cement. Special tests of the relative quality and durability of some fifty of the most important of these aggregates have been made by freezing and thawing, alternate soaking in saturated sodium sulphate solution and drying, and in concretes using constant mortars. In this part of the preliminary work between twenty-five and thirty thousand specimens have been made and tested for tension, compression, resistance to sulphates, impermeability, freezing and thawing and volume change. On the whole it has been demonstrated that dependable concretes may be made from sands and gravels found at frequent intervals along or near the right of way of the Aqueduct.

Curing Problem

Another problem given considerable study in the laboratory is the relative merit and value of various methods and mediums proposed for curing the concrete. On this project where water is at a premium, curing by that means is to be avoided where other means will produce satisfactory results. The most adaptable other method is that of sealing in the original moisture in the concrete at an early age with a sealing compound which will positively prevent evaporation. The tests made have shown which compounds are effective and which are useless. They have also developed procedure in application in order to get best results with a minimum of temperature range and consequent expansion and contraction by

finally painting the work with whitewash.

The resistance of mortars and concretes to the disintegrating effects of sulphate ground water is a phase of the preliminary work which has received considerable attention throughout. Mortar specimens of over one hundred cements of different composition will have been exposed to sulphate solutions under various conditions. In these tests, first the value and manner of the test itself has been studied and improved, secondly by elimination and performance the types of cement which may be relatively depended upon have been proved. It is hoped before this part of the work is concluded that a cement composition may be found of which engineers may be confident of its demonstrated definite resistance to sulphate waters.

Special Cements

Most recent of the preliminary studies is the investigation of several special cements of definite compositions within the range of standard portland cement specifications in order to provide data from which adequate specifications may be prepared for a cement of nominal cost of manufacture having most favorable properties under the conditions under which the Aqueduct will be constructed. This series also includes tests and specimens designed to produce information which will be important in the determination of proper procedure in mixing, placing and curing the concrete.

(Continued on Page 8)

Mecca Pass No. 2 Excavation Finished

Excavation of Mecca Pass tunnel No. 2 was completed on the morning shift of August 11, finishing the excavation program of the Mecca Pass tunnels contract held by Morrison-Knudsen.

Work on bulkheading of the face and driving of a raise for ventilation was scheduled to have been completed on August 14.

Mecca Pass No. 2 is 997 feet long. No. 1 tunnel, on which excavation was finished May 22, is 338 feet long. The No. 3 tunnel, 4,605 feet from end to end, was completed on June 19.

At No. 3 tunnel work has been going forward on the excavation of four seven-foot trenches, dug down to undisturbed rock along the north side of the tunnel at 1,000-foot intervals, so that a study for the concrete footings may be made. The dragline on the Conway "30" mucking machine was placed in operation in the approach cut August 10, removing several feet of tunnel muck which is to be replaced with sand and gravel. Construction of a concrete plant also began on that date.

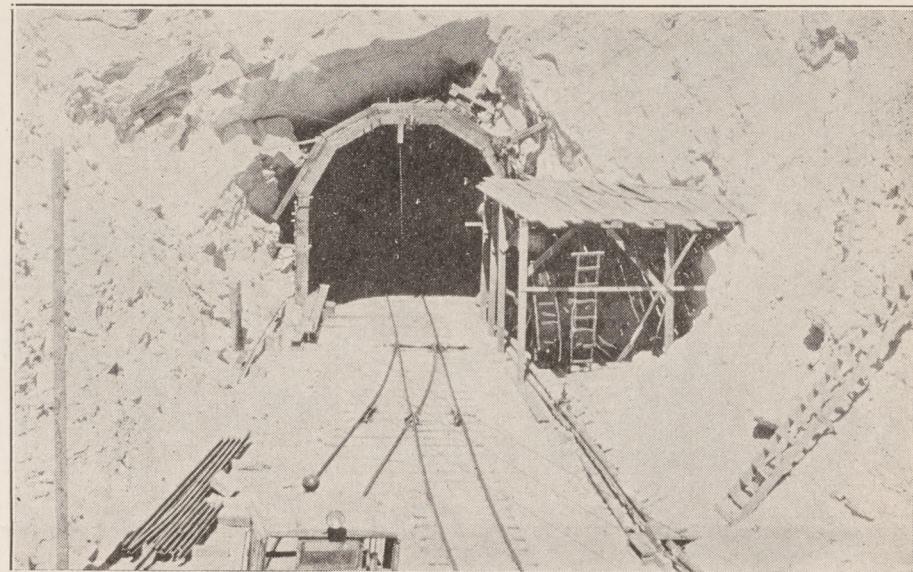
High Court Rules On Interest Payments

Word was received in Los Angeles last week that the State Supreme Court has handed down a ruling declaring it legal for the Metropolitan Water District to use the proceeds from bond sales to pay interest on bonds outstanding.

In so ruling the court issued a peremptory writ of mandate ordering Charles H. Toll, treasurer of the District, and D. W. Pontius, controller, to transfer \$352,800 from the Colorado river water bond election 1931 fund to the interest and sinking fund to pay the interest on \$6,048,000 bonds sold to the Reconstruction Finance Corporation.

The court's action, it was pointed out, is the result of a friendly suit to establish the legality of paying interest out of bond funds.

With the court's decision now effective, the District's Board of Directors will be enabled to determine each year during the period of construction, whether bond interest charges will be paid from bond funds, a tax levy, or a combination of these two.



West portal, Hayfield Tunnel No. 2

All-American Canal Construction Launched

With the Colorado River Aqueduct and Boulder Dam construction rapidly going forward, August 8 saw the commencement of the third chapter of Colorado River development, the launching of work on the All-American Canal project of the Imperial Irrigation District.

As more than 100 citizens of Imperial and Yuma Valley looked on, a Diesel shovel moved the first earth on the \$27,500,000 project. Mark Rose, pioneer director of the irrigation district, guided the shovel as it took its first mouthful of earth and rock.

The canal, in its main portion to the western limits of the Sand Hills, will be 200 feet wide and 22 feet deep. Depth and width will be greater through the sand hills. In the present irrigation district alone the new canal will supply water to approximately 500,000 acres, said to be the largest irrigated area in the world.

The project is being carried forward under the direction of the United States Reclamation Bureau. Its cost is to be repaid to the Government by the Imperial Irrigation District.

Gripped by the worst drought of its history, Imperial Valley viewed beginning of the canal as a sign that never again will farmers be subjected to a water shortage such as has been felt during the last three months.

Hayfield No. 2 Passes 3,000 Ft. Mark

Shofner & Gordon's crews, working on Hayfield Tunnel No. 2, reached a milestone in progress recently by completing 3,000 feet of excavation.

Working two shifts daily, six days a week, a total advance of 355 feet was made between July 16 and August 15, bringing the total amount of tunnel excavated up to 3,105 feet.

The bore's total length will be 5,375 feet. Approximately 80 per cent of the tunnel excavated to date has been timber supported. Work is going forward from the bore's west portal.

The firm of Shofner & Gordon is made up of Floyd Shofner and J. N. Gordon. H. E. Warden is general superintendent on the job. Contract price on the tunnel was \$471,889, and the contract was awarded on June 2, 1933.

Camp Sanitation Is Praised By Official

Praise for the health safeguards for the men in the twenty aqueduct construction camps in Riverside County was contained last week in the annual report of T. P. B. Jones, sanitation agent of the County Health Department.

DIRECTORY

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 Franklin Thomas, Vice-Chairman
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GENERAL STAFF

General Manager and Chief Engineer.....F. E. Weymouth
 Asst. General Manager.....J. L. Burkholder
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 General Counsel.....James H. Howard
 Asst. Controller.....J. M. Luney
 General Superintendent.....James Munn
 Chief Elec. Engineer.....J. M. Gaylord
 Construction Engineer.....J. B. Bond
 Asst. to Gen. Mgr.....Don J. Kinsey

DIVISION ENGINEERS

Division 1.....R. C. Booth
 Divisions 2 and 3.....John Stearns
 Division 4.....R. B. Diemer
 Divisions 5 and 6.....B. C. Leadbetter

SUPERINTENDENTS

Colorado River, Copper Basin and Whipple Mt. Tunnels, Walsh Construction Co., F. T. Huntington, Gen. Supt.; W. A. Huntington and E. A. Hatch, Tunnel Supts.
 Coxcomb Tunnel and Iron Mt. shaft, Winston Bros., E. A. Bernard, Gen. Supt.; F. T. Hillman and R. B. Johnson, Tunnel Supts.

Iron Mt. Tunnel, West Portal, Utah Constr. Co., Ben Arp, Gen. Supt.
 East Eagle Mt. Tunnel and West Eagle Mt. Tunnel, east portion, Broderick & Gordon, C. J. Kavanagh, Gen. Supt.

West Eagle Mt. Tunnel, west portion, L. E. Dixon and Bent Bros., P. C. Quinn, Gen. Supt.

Hayfield Tunnel No. 1, Hunkin & Conkey Constr. Co., G. B. Hoag, Gen. Supt.; F. Backlund, Tunnel Supt.

Hayfield Tunnel No. 2, Shofner & Gordon, H. E. Warden, Gen. Supt.

Cottonwood Tunnel, J. F. Shea Co., Inc., Gilbert Shea, Gen. Mgr.; Joe Bonner and Carl Nelson, Tunnel Supts.

Mecca Pass Tunnels, Morrison-Knudsen, S. A. Dahlberg, Gen. Supt.

Coachella Division, R. M. Merriman, Division Supt.

Yellow Canyon Adit, E. Coachella Tunnel—District Force Account.....W. L. Taylor

Fargo Adit, East Coachella Tunnel—District Force Account.....J. H. Manwaring

Berdoe Adit, East Coachella Tunnel—District Force Account.....F. A. Weller

Pushawalla Adit, East Coachella Tunnel—District Force Account.....

Kenneth MacIsaac

Thousand Palms—District Force Account.....D. L. Reaburn

Wide Canyon—District Force Account.....John Jackman

Long Canyon—District Force Account.....E. E. McCabe

Little Morongo—District Force Account.....R. L. Bryant

Whitewater Tunnels, West Constr. Co., H. E. Carleton, Gen. Supt.; Angus MacDonnell, Tunnel Supt.

San Jacinto Tunnel, Wenzel & Henoch, Walter Hoenecke, Gen. Supt.; W. A. Boyd, Walter Baer, and Jack May, Tunnel Supts.

Bernasconi Tunnel, Hamilton & Gleason Co., H. J. King, Gen. Supt.

Valverde Tunnel, Dravo Contr. Co., R. W. Remp, Gen. Supt.; H. C. Richardson, Asst. Gen. Supt.; Dean Luther, J. R. Glaeser, Jack Stone, and Fred Youmans, Tunnel Supts.

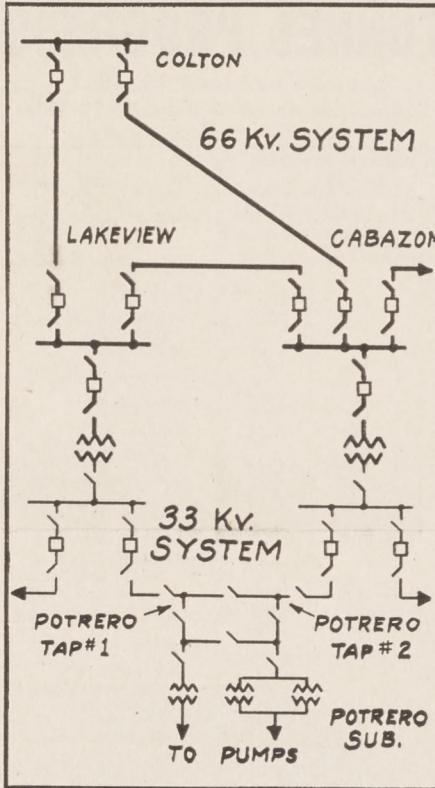


Diagram of the duplicate electrical service which insures continuous power for pumps at Potrero shaft, and (right) one of the 1,200 gallons per minute pumps in operation.

NEW PUMP GIVES IMPETUS TO LOWERING POTRERO WATER

Accelerated progress on the lowering of water in Potrero shaft of San Jacinto tunnel was being made last week following the installation of a new 750-horsepower pump, augmenting the work being done by the two smaller pumps already in operation.

Since July 11 the two Byron-Jackson pumps, each with a capacity of 1,200 gallons per minute at an 800-foot elevation, have lowered the water 350 feet. Approximately 300 feet of water remains to be removed. The inflow into the shaft is now reported to be about 2,000 gallons per minute as compared to 7,500 gallons per minute a month ago.

On the first day the third pump (of Peerless manufacture with a capacity of 2,600 gallons per minute at an 800-foot head) was placed in operation, the water was lowered thirty feet, and it is believed that from now on the pumps may be lowered an appreciable distance every day, instead of every three or four days.

In order to assure continuity of electrical service for the pumps during the period while the shaft and tunnel are

being unwatered, Potrero substation of the District's construction power system has been provided with a complete duplicate service all the way from the high-voltage source of supply at Colton to the terminals of the pump motors.

The diagram above shows how this dual service is furnished. The main power system was designed with the idea of providing alternative routes to the San Jacinto tunnel job. Any tap from the 33 kv distribution system in this territory can be supplied from either Cabazon or Lakeview and each of these main substations is served by two independent 66 kv lines from Colton. Hitherto there has been only one tap line from the 33 kv loop to Potrero; but now a second tap line has been built over a different route, so that the duplication of service extends all the way from the power source to the pumps.

The second Potrero tap was begun by District forces during the latter part of July and completed August 4, about one week before Wenzel & Henoch installed the new 750-horsepower pump.

**BEST PROGRESS
This Period**

 Rock Tunnels - Colorado River, 925 ft.
 Gravel Tunnels - Whitewater No. 2, 797 ft.

TUNNEL PROGRESS

 July 16 to August 15, 1934
 Tunnel Excavated to Date, 36.79 Miles

**BEST WEEK'S PROGRESS
This Year**

 Rock Tunnels - Colorado River, 265 ft.
 Gravel Tunnels - Whitewater No. 2, 233 ft.

TUNNELS ON CONTRACT	Length in feet	Number of Shifts	EXCAVATION PROGRESS IN FEET			TUNNELS ON CONTRACT	Length in feet	Number of Shifts	EXCAVATION PROGRESS IN FEET			
			Average Per Shift	This Period	Total to date				Average Per Shift	This Period	Total to date	
Walsh Constr. Co. COLORADO RIVER West Portal	(5514) 5514	93	9.9	925	1825	J. F. Shea Co. COTTONWOOD East Portal	(20,105) 10,114 9991	78	9.1 7.6	708 619	7176 6737	
COPPER BASIN, No. 1 West Portal	(752) 752			0	752	West Portal						
COPPER BASIN, No. 2 East from adit	(11,580) 1878			0	1878	Morrison-Knudsen MECCA PASS No. 1, West Portal	(5,940) 338 997 4605	78	6.7	0 524 0	338 997 4605	
Adit	330			0	330	No. 2, West Portal						
West from adit	9702	93	8.6	803	5432	No. 3, East Portal						
WHIPPLE MT. East from adit	(32,265) 18,352	93	7.0	655	5083	West Constr. Co. WHITEWATER No. 1, West Portal	(10,206) 2060 8146	0	0 9.8	0 797	35 7634	
Adit	924			0	924	No. 2, East Portal						
West from adit	13,913	93	6.1	571	4315	Wenzel & Henoch SAN JACINTO East from Cabazon	(67,415) 8553 246 935 22,839	93	0.7 8.5	64 796	744 935 3526	
Winston Bros. IRON MT. East from shaft	(39,759) 9844	81	4.6	373	2304	Cabazon shaft						
Shaft	165			0	165	Cross drift						
West from shaft	13,743	81	7.3	589	5088	West from Cabazon						
Utah Constr. Co. IRON MT. West Portal	16,172	93	6.4	595	7864	East from Potrero	20,589 796 6712 8722	0 0 0 93	0 0 0 3.8	0 0 0 355	160 796 223 2304	
Winston Bros. COXCOMB East Portal	(17,795) 8765	81	9.0	732	6282	West Portal						
West Portal	9030			0	0	Hamilton & Gleason BERNASCONI East Portal	(6220) 6220	57	7.5	427	4339	
Broderick & Gordon EAST EAGLE MT. West Portal	(9,442) 9442	81	3.8	304	513	Dravo Contr. Co. VALVERDE	(38,765) 2140 64 1525	53	6.5	344 0 32 155	2043 64 1424 4055	
WEST EAGLE MT. East from adit	(26,494) 7871	81	6.2	506	2381	Shaft 1						
Adit	2008			0	2008	Shaft 1	5400 204 5400	87	1.8	0 0 5.2	204 204 4216	
West from adit	7974	81	5.0	408	1551	West from Shaft 1						
Dixon & Bent WEST EAGLE MT. West Portal	10,649	81	7.2	585	5832	East from Shaft 2						
Hunkin & Conkey HAYFIELD, No. 1 East from adit	(9677) 5317	81	5.4	435	2280	Shaft 2	5400 204 5400	87	1.8	155 0 456	4055 0 4216	
Adit	511			0	511	West from Shaft 2						
West from adit	4360	81	4.9	400	1927	East from Shaft 3	6950 192 6950	87	0	0 0 6.4	2450 192 560	
Shofner & Gordon HAYFIELD, No. 2 West Portal	(5375) 5375	54	6.6	355	3105	Shaft 3						
						West from Shaft 3	6950 192 6950	87	0	0 0 6.4	2450 192 560	
						East from Adit	5117 406 5283	58	2.3	0 0 2.3	359 0 0	
						West from Adit						
Total Excav. Contract Tunnels exclusive of Adits and Shafts (In Miles)								307,304 58.20	2387	5.99	14,309 2.71	115,721 21.92

TUNNELS ON FORCE ACCOUNT

EAST COACHELLA TUNNEL	Sched.	(96,610)					WIDE CANYON	Sched.				
Yellow Canyon Adit		686					No. 1, E. Portal	5	5122	81	7.7	622
East from adit	1	10,204	81	6.6	536	6724	No. 1, W. Portal	6	9183	81	7.3	595
West from adit	1	10,076	81	7.0	570	6573	No. 2 Tunnel	6	848			0
Fargo Canyon Adit		891					SEVEN PALMS	(16,730)				
East from adit	2	11,850	81	6.2	0	891	E. Portal	6	8390	51	5.5	279
West from adit	2	15,200	81	4.4	500	5852	W. Portal	7	8340	81	9.8	793
Berdoe Canyon Adit		2042					LONG CANYON	(15,240)	8360	81	8.3	669
East from adit	3	15,824	81	8.6	697	7180	W. Portal	8	6880			2048
West from adit	3	12,456	81	7.8	631	6898	BLIND CANYON	(6,788)				0
Pushawalla Canyon Adit		2935					E. Portal	8	—			
East from adit	4	10,186	81	7.1	0	2935	W. Portal	8	6788	81	7.7	620
West from adit	4	10,814	81	7.9	573	4351						1756
WEST COACHELLA TUNNELS		(81,109)					MORONGO No. 1	(5,512)	5512	81	6.4	516
THOUSAND PALMS							E. Portal	8	—			1392
No. 1, West Portal	5	16,058	81	7.5	610	6078	W. Portal	8				0
No. 2, Tunnel	5	3838			0	3838	MORONGO No. 2	(1790)	1790			0
							E. Portal	8	—			0
							W. Portal	8				0
Total excav. Force Acct. Tunnels excl. of Adits and Shafts (In Miles)								177,719	1266	7.28	9213	78,531
								33.66		1.74	14,87	
Total Tunnel Excavation (Miles)								91.86		6.44 ft.	4.45	36.79

Heading excavation is counted as two-thirds of full tunnel excavation.

NEWS FROM FIELD AND OFFICE

One of the largest crowds of the Banning nightball series was present on the evening of August 8 when the M. W. D. Field Headquarters team played the Riverside Day and Night Market nine. The Riverside diamond artists won from the aqueduct team 17 to 4. Playing for the Metropolitan Water District were Smith, ss; Arnold, cf and 2b; Laneville, 3b; Stanier, lf and 1b; Alberts, c; Fox, 1b and p; Green, c; Bonelli, lf; Dunn, 2b; Pack, rf; Holland, rf; Bort, rf, cf.

* * *

A six-car garage shed and an electric shop were completed last week at Shaft No. 3 Camp on Valverde tunnel.

* * *

The Soboba Road is being oiled by Riverside County from the West Portal of San Jacinto tunnel, it was reported from Division 5 headquarters last week.

* * *

August 29 has been selected as the date for the third Coachella Division dance to be held in the new divisional recreation hall at Berdoo Camp. An invitation has been extended to all aqueduct employees to attend. F. T. Fauble is managing the affair. The previous two dances held in the new building were well attended and highly successful.

* * *

Gladys L. Birkeland, of the accounting division, left her position with the District on August 11 for Washington, D. C., where she will be employed by the Federal Government as a comptometer operator. Miss Birkeland received her appointment after successfully passing a Federal civil service examination.

* * *

Al Capon, major domo of the Los Angeles office baseball enthusiasts, has issued a clarion call to all candidates for the team—suggesting that a little backyard warming-up would be advisable, in view of the impending clash with field forces at the annual picnic this fall. No definite date for formal practice has yet been set.

* * *

A specially selected committee, including Dr. T. Sheridan Carey and all first aid men from the Coachella Division, has been delegated to be on hand at the dock at San Pedro this (Monday) morning to receive Division Superintendent Merriman, who is scheduled to arrive by boat from Vancouver on the last lap of his vacation. During the past week the doctor has been laying in a supply of smelling salts, lemon drops, and other tried-and-true remedies for sea-sickness.

Flying during August for the best camp records for safety, progress, and economy on the Coachella Division in July were:

Safety Flag—

Thousand Palms.

Economy Flag—

Berdoo Camp.

Progress Flag—

(Not yet awarded.)

* * *

The Hard Hat, emblem of efficiency on Division 3, was awarded by Division Engineer Stearns to Winston Brothers' Coxcomb tunnel crews.

Roy Scrivner, of the Miscellaneous Activities Division, was honored recently by the Young People's Association of the First Baptist Church of Glendale which selected him as delegate to the State Convention of the B. Y. P. U. at Idyllwild, August 19 to 31.

* * *

Sealed proposals for furnishing approximately 168 or more feet of movable steel telescoping forms and accompanying traveler, for lining 16-foot tunnel, in accordance with the District's specifications, will be received by the District until 10 a. m. on August 31, it was announced last week.

* * *

Award of a contract to the General Electric Company for 20,000 feet of 2/00 parkway cable was made last week by the District Board of Directors. The net price to the District was \$23,820.30.

* * *

Construction work at the east heading of Seven Palms tunnel was suspended at midnight, August 4. The balance of the excavation of this bore will be made from Long Canyon Camp at the west heading.

* * *

The Reclamation Bureau forces at Parker dam last week continued laying out a survey control for dam features. The road to the crest of the dam is being staked and referenced out.

* * *

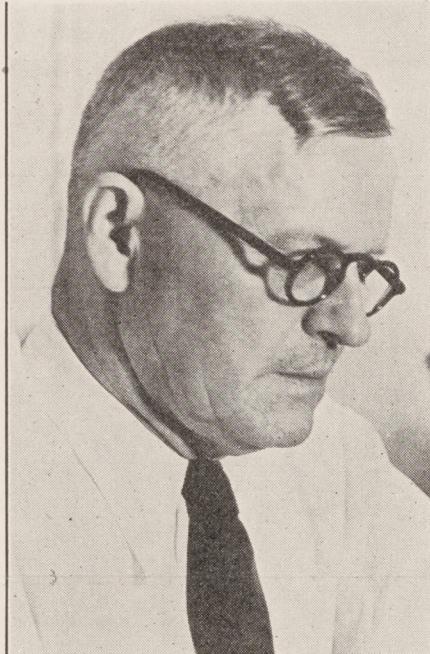
County Surveyor A. C. Fulmore of Riverside County, A. G. Moss of the State Railroad Commission, J. H. Keith and Coleman Cooper of the State Board of Equalization, were visitors at the Little Morongo Camp recently.

* * *

Henry Hart, formerly connected with the Banning office, has moved, with his family, to Los Angeles where he has accepted a position with the Los Angeles County Flood Control District.

* * *

Of interest to employees on the eastern end of the aqueduct line is the fact that officials of San Bernardino County are making an effort to have the highway, extending north and south through Needles, improved by the State Highway Commission. This road, running from Blythe to Boulder Dam, crosses the Metropolitan Water District highway paralleling the aqueduct line.



No, friends, this scholarly looking individual is not the professor of higher mathematics at Oxford University. It is none other than Construction Engineer J. B. Bond—no slouch at mathematics, at that.

AQUEDUCT TEMPERATURES

July 29 to August 11 inclusive

Max. Min.

Div. 1	116°	71°
Div. 2 & 3	112°	70°
Div. 4	111°	70°
Div. 5 & 6	102°	57°

Testing Laboratory

(Continued from Page 3)

Some 30,000 pounds of cement in six compositions and two degrees of fineness was made under carefully and scientifically controlled conditions for uniformity at the small mill now operated for such purposes at the University of California. Aside from many smaller specimens for comparatively incidental tests such as compressive strength of mortars and concretes, sulphate tests, volume change studies, and measurement of relative leaching, bleeding, and modulus of electricity, the principal specimens in the tests were nearly 500—6"x12"x36" concrete slabs in three groups. The first group was cast in the field at Division No. 3 and will remain under typical Aqueduct construction conditions until test. The second and third group was made at Banning under controlled, uniform temperature and humidity conditions. The second group will remain in the moist room at 70° until test while the third group, after a curing period, will be treated to 100 cycles of accelerated weathering conditions of hot and cold, wet and dry. Some of these slabs at six months and the remainder at one year will be tested in cross bending with the exposed surface in tension. An abrasion test to determine relative resistance to wear and erosion will also be applied to the exposed surfaces of the slabs. Special instruments for measurement of strains, temperatures and volume changes, top and bottom, have been installed in each group and a continuous history of the condition of the slabs in these respects is being made.

(To Be Continued)



Carl F. Reynolds of Little Morongo, the holder of another outstanding aqueduct service record. (See next column.)

BEST TUNNEL ADVANCE TO AUGUST 1

Tunnel and Heading	Best Wk. Ft.	Best Mo. Ft.	Tunnel and Heading	Best Wk. Ft.	Best Mo. Ft.
Colorado River	251	961	Pushawalla	—E.	142
Copper Basin No. 1	161	649	—W.	227	797
Copper Basin No. 2	—E.	562	1000 Palms No. 1	—W. portal	176
	237	807	No. 2	—E. "	156
Whipple Mt.	—E.	193	Wide	—E. "	143
	—W.	168	No. 1	—W. "	160
Iron Mt. Shaft	—E.	97	No. 1	—E. "	98
	—W.	176	No. 2	—E. "	366
Iron Mt. W. Portal	Compacted Sand	315	Seven Palms	—E. "	158
	Rock	174		—W. "	600
Coxcomb	—E.	183	Long Canyon	—E. "	190
East Eagle Mt.		81	Blind Canyon	—W. "	710
West Eagle Mt. Adit	—E.	123	Morongo No. 1	—E. "	156
	—W.	96	Whitewater No. 1	—E. "	597
West Eagle Mt.	—W. Portal	180	(Gravel) No. 2	—E. portal	123
Hayfield No. 1 Adit	—E.	112	San Jacinto Tunnel:		526
	—W.	106	Cabazon Shaft	—E.	—
Hayfield No. 2	—W. Portal	114	—W.	83	187
Cottonwood	—E.	227	Portrero Shaft	—E.	191
	—W.	189	—W.	35	77
Messa Pass No. 1		84	West Portal	—W.	54
No. 2		84	Bernasconi	—E.	137
No. 3		236		—W.	—
Yellow Canyon	—E.	196	Valverde Shaft No. 1	—E.	111
	—W.	202	772	—W.	428
Fargo	—E.	171	Shaft No. 2	—E.	475
	—W.	150	552	—W.	83
Berdoo	—E.	209	Shaft No. 3	—E.	255
	—W.	216	774	—W.	129
				—W.	139
				—E.	505
				—E.	166
				—W.	419
				—W.	149
					595

The above table compiles the best week's and month's progress made at each aqueduct tunnel heading since construction started. Only headings at which work is fully under way are shown. Compare this table with a similar one printed in the June 20 issue of the NEWS.

Morongo Man Has Long Service Record

Another outstanding record for long continuity of service on the aqueduct was brought to the attention of the NEWS last week by friends of Carl F. Reynolds, now employed at Little Morongo.

Mr. Reynolds started working on the aqueduct on March 1, 1933, and has been off but one working day since then. And that one day's lost time was caused by illness. He was first employed at Thousand Palms, and later transferred to his present post.

Mr. Reynolds hails from Burbank, where he lives (when he gets a chance) with his wife and five children at 1050 Maple street.

Attention is again called to the fact that the NEWS is glad to print the names and pictures of men who are possessors of exceptional records of uninterrupted service on the aqueduct.

Attention Called To Medical Rule

Attention of District employees was called last week to the following communication from General Manager Weymouth to Dr. Hugh M. Mason, District physician in the Los Angeles office:

"Your attention is called to paragraph 12 of REGULATIONS COVERING MEDICAL ATTENTION AND SERVICES FOR EMPLOYEES which reads as follows:

"Where no deduction is made. Where no deduction is made from the pay of an employee for medical attention and service, no liability to furnish such services to such employee shall attach to the Metropolitan Water District of Southern California under this cooperative arrangement."

"Employees from whom no deductions for hospital and medical attention are made, who use the services of the District physician, shall be billed at rates established by outside physicians."

(Signed) F. E. WEYMOUTH.